Flood-MAR Overview and Program Alignment

April 21, 2021

California Water Commission

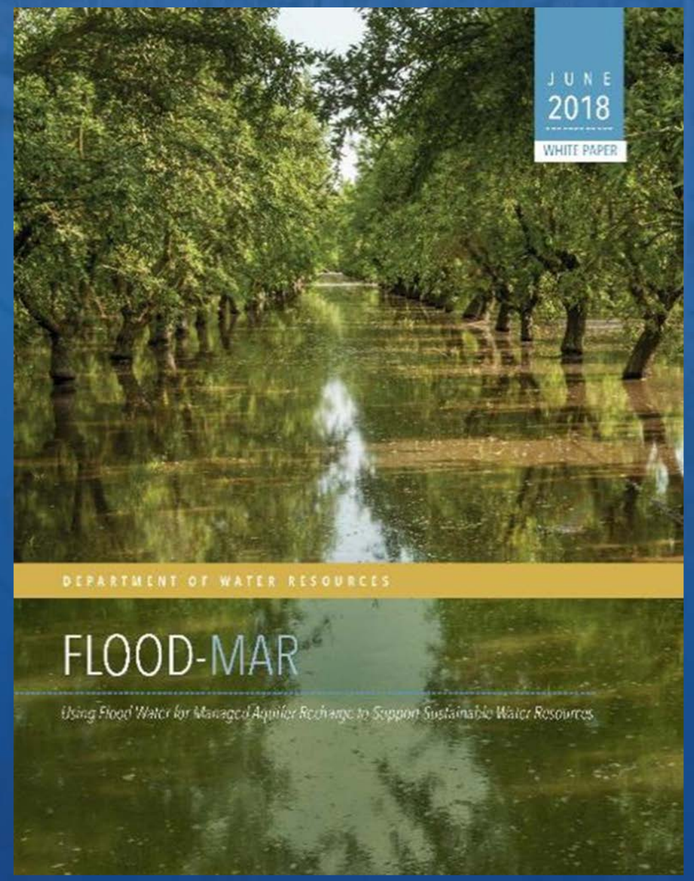
I'll Cover…

- Flood-MAR White Paper
- DWR's Flood-MAR Program Overview
  - Watershed Studies
  - Pilot Projects
  - Guidance and Outreach
- Flood-MAR Alignment Activities
- Flood-MAR and Conveyance Needs

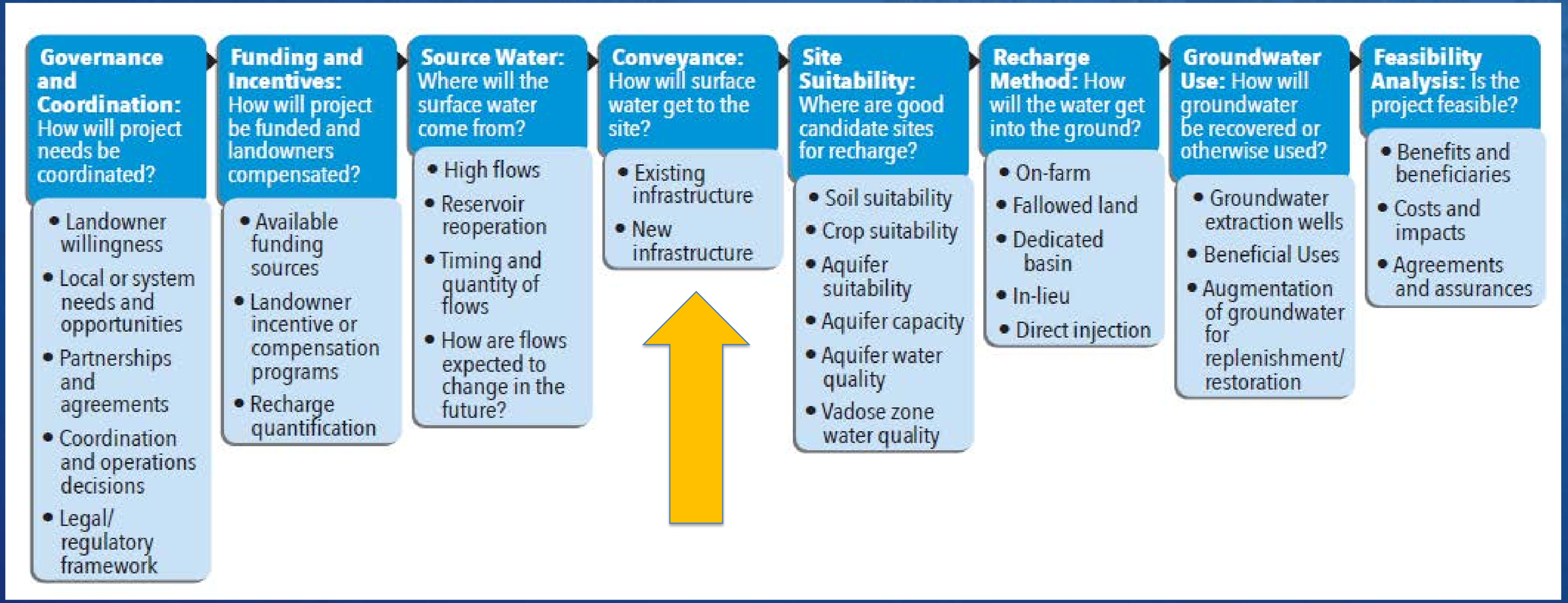
Flood-MAR White Paper

Flood-MAR White Paper

Flood-MAR's potential and value for California is achieved by integrating Flood-MAR with other regional recharge efforts; changing management of California's water system to better integrate surface water and groundwater; upgrading conveyance, storage, and operations; and considering Flood-MAR's opportunities as related to water transport and transfers are some of the system integration considerations.



Considerations for Implementing Flood-MAR Projects



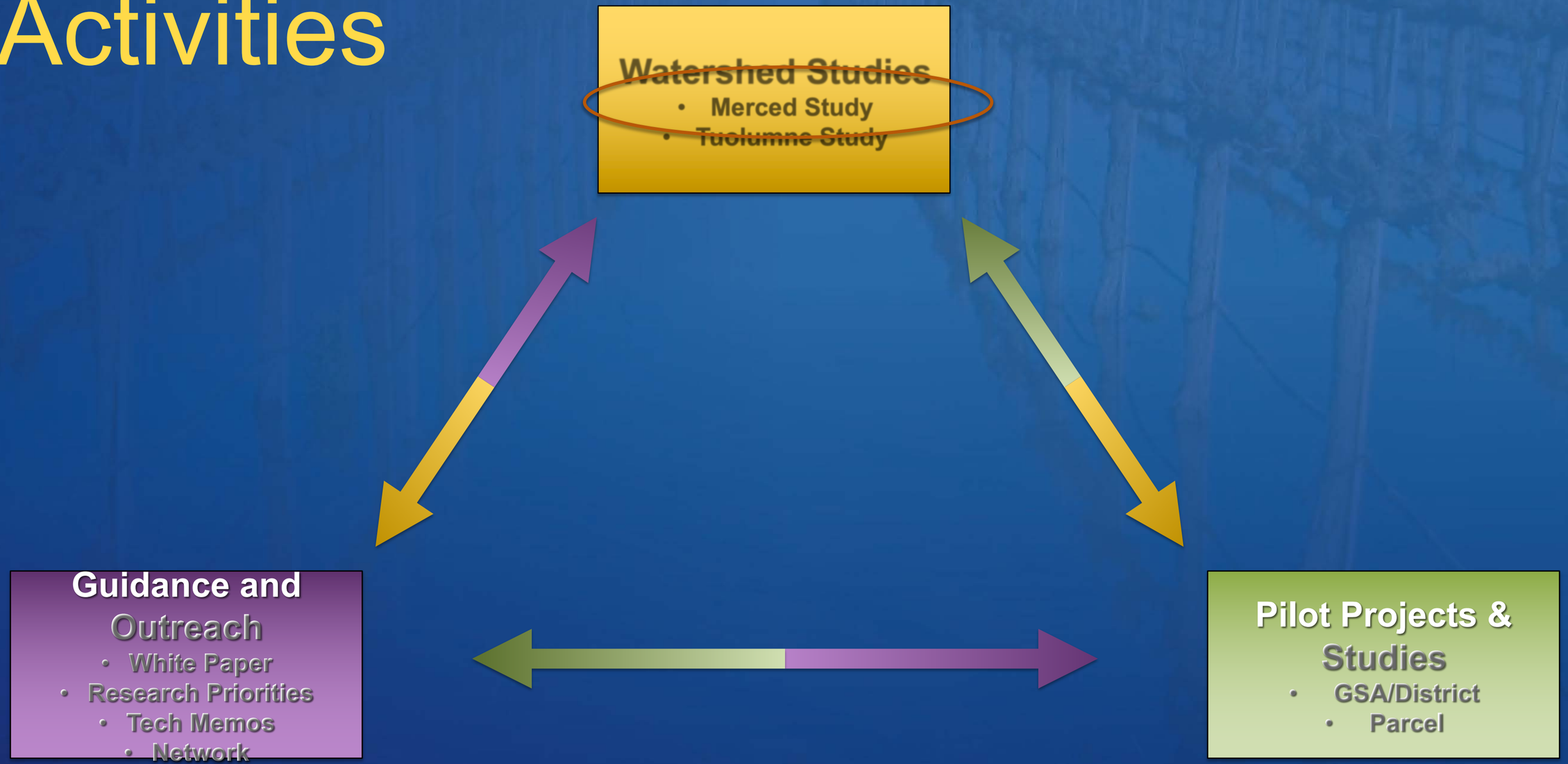
Potential Public Benefits of Flood-MAR

- **Flood risk reduction**
- **Drought preparedness**
- Aquifer replenishment
- **Ecosystem enhancement**
- **Groundwater remediation/water quality**
- Working lands preservation & stewardship
- Climate change adaptation
- **Recreation** and aesthetics

DWR Flood-MAR Program

DWR's Flood-MAR Program

DWR's Flood-MAR Program Activities



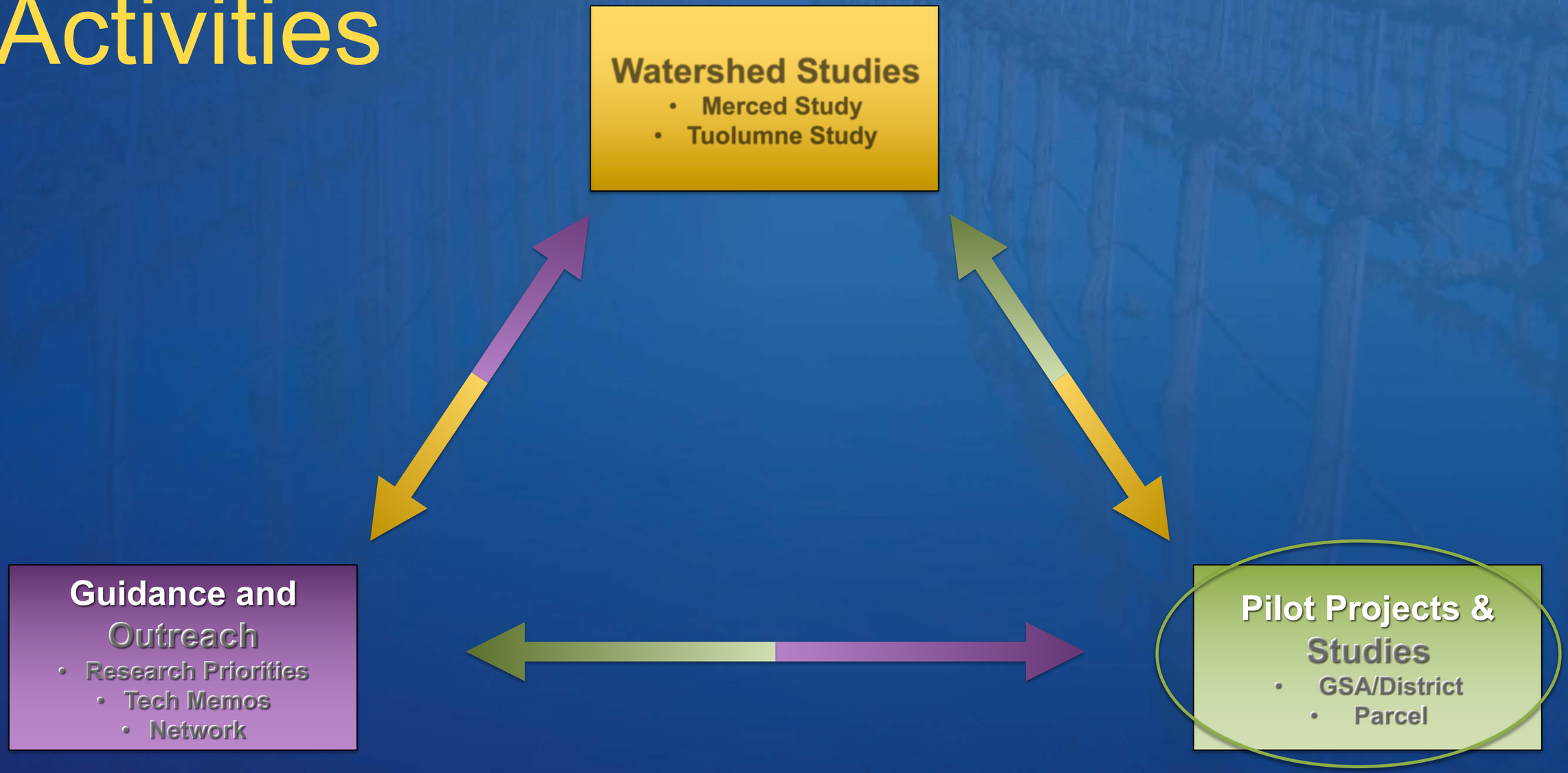
Merced Study Purpose & Goals

- Watershed scale analysis
- Integrated toolset
- Climate change vulnerability and adaptation
- Guidance for studies in other areas

Conveyance Considerations

- Low hanging fruit – just moving floodwaters to unlined distribution systems
  - Flood risk reduction and recharge benefits at district scale
- Conveyance availability (time of year, maintenance)
- Conveyance capacity for multiple benefits

DWR's Flood-MAR Program Activities



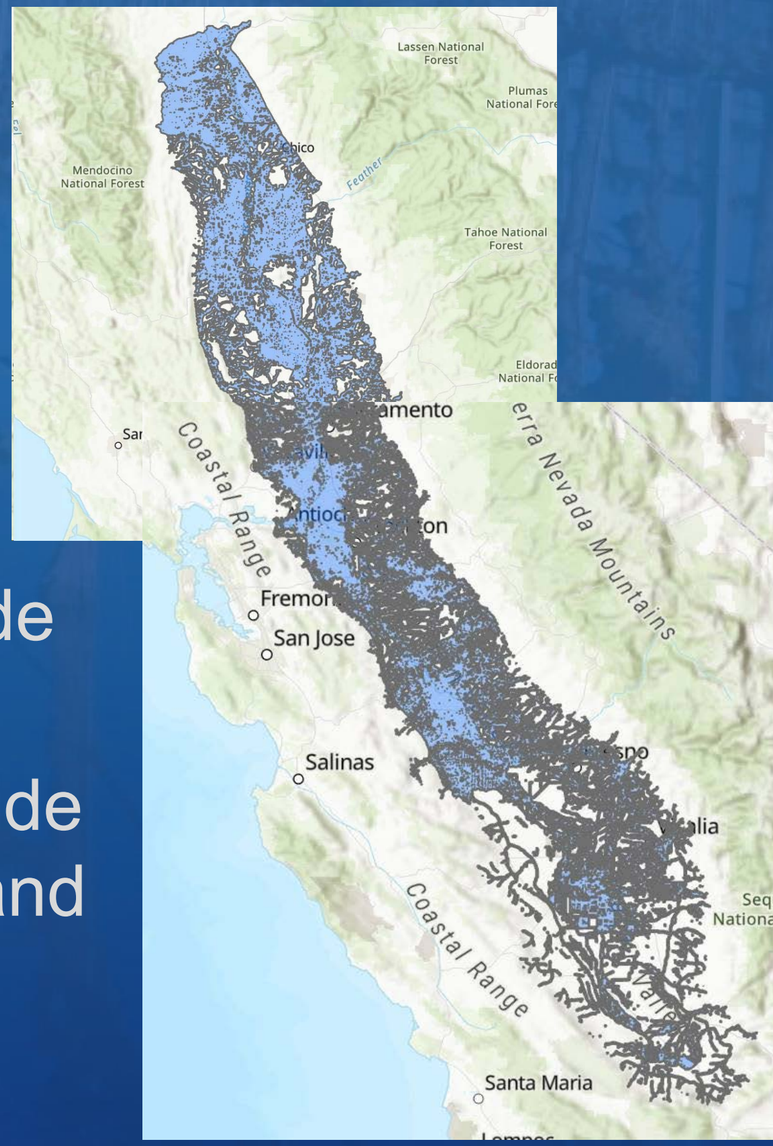
TNC Multi-Benefit Recharge

- Evaluate and demonstrate managed aquifer recharge opportunities that deliver:

habitat creation + groundwater recharge + flood risk reduction

Site Selection – Conveyance Constraints

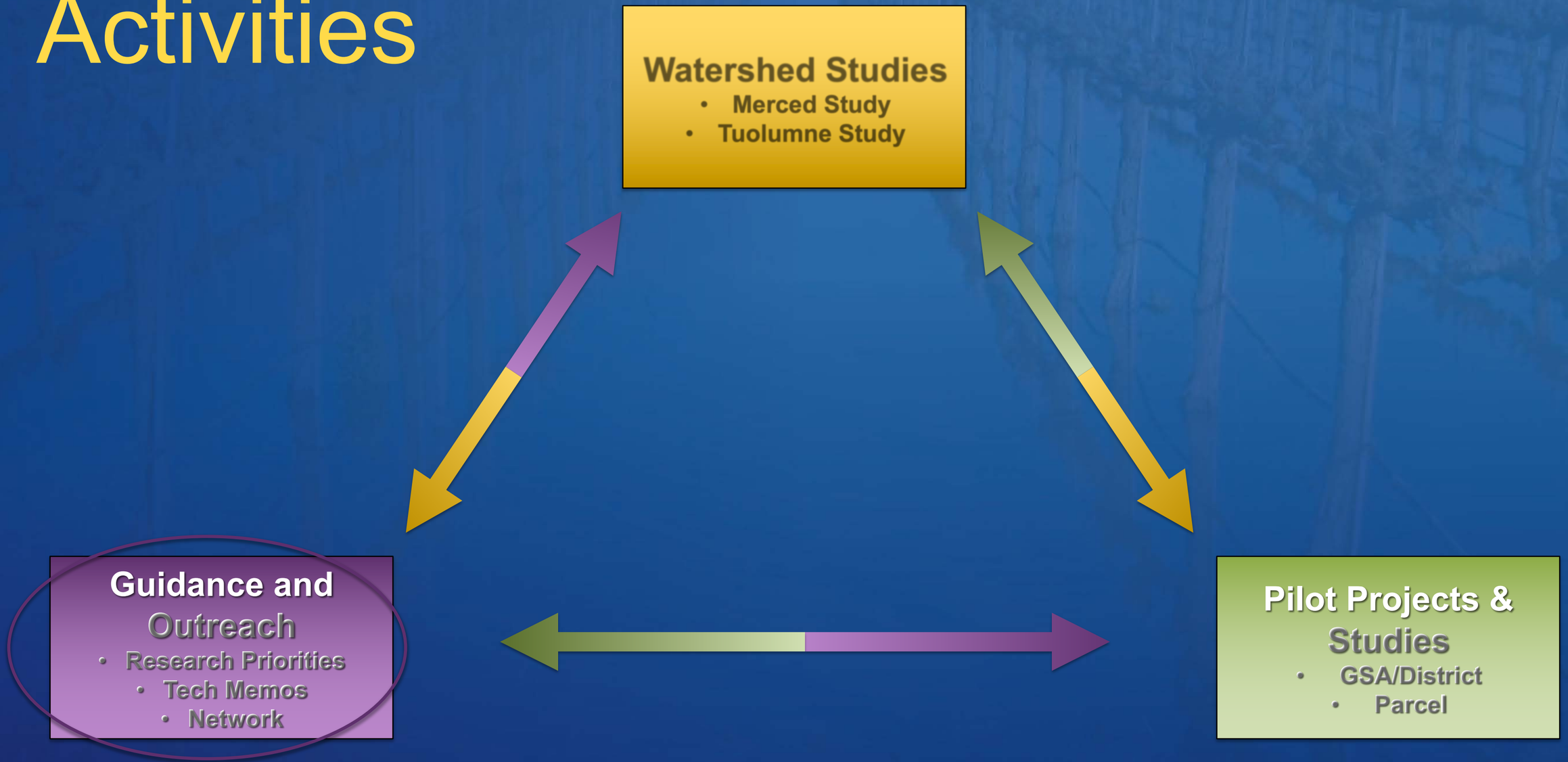
- Screening criteria – Distance to existing surface water conveyance
- Interesting conveyance dynamic in San Joaquin
  - Summer/fall window may be better for west side of valley using water deliveries in canals
  - Winter/spring window may be better for east side of valley using high flows in natural channels and bypasses



Scoping Other Pilots

- On-farm demonstrations projects in Sacramento and San Joaquin valleys
- Floodplain recharge analysis and demonstration project along the San Joaquin River
- District-scale implementation in the San Joaquin Valley

DWR's Flood-MAR Program Activities



Outreach Activities

- 2017 and 2019 Public Forums
- 2019 Ag Community Listening Session
- 2019 Research Advisory Committee
- 2020/2021 Monthly Lunch-MAR Webinars
- 2020/2021 Flood-MAR Network Convening

Feedback Related to Conveyance

- In many areas of the state, **lack of sufficient conveyance facilities** is a constraint.
  - Many critically overdrafted basins do not have sufficient infrastructure for managed aquifer recharge.
- **Capacity constraints can limit the conveyance** of water to a groundwater recharge location.
- **New or modified conveyance facilities, and modified operation of existing facilities, are required** to maximize managed aquifer recharge statewide.
  - The maintenance and restoration of existing, and construction of new, infrastructure that can facilitate Flood-MAR needs to be evaluated.

Flood-MAR Alignment

Flood-MAR Alignment with other State Efforts

- Water Resilience Portfolio Actions
- Central Valley Flood Protection Plan
- CVFPP Conservation Strategy
- Forecast-Informed Reservoir Operations
- Sustainable Groundwater Management Act Implementation

Flood-MAR Alignment with other State Efforts

- Water Resilience Portfolio Actions

3.4 – …provide technical assistance to facilitate **[Flood-MAR]…**

11.3 – Support expansion of **multi-benefit floodplain projects**…

19.3 – Conduct a **feasibility analysis for improved and expanded [conveyance] capacity**…

22.5 – Assess and **integrate…surface and groundwater models.**

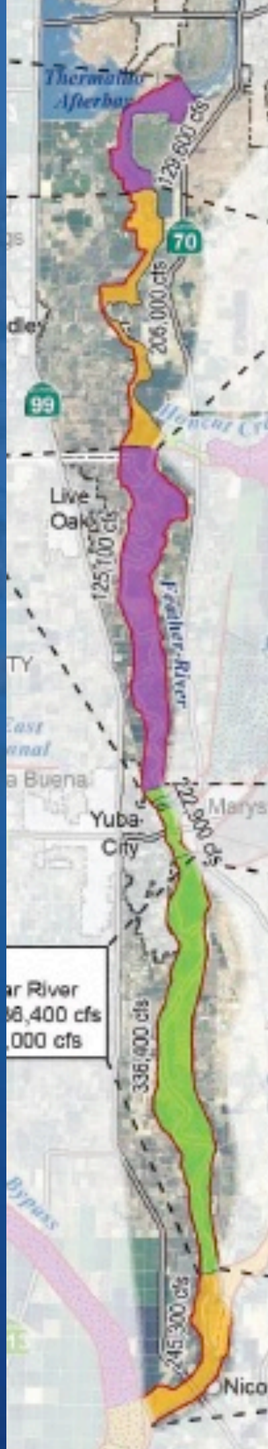
25.4 – **Update and refine the [San Joaquin River] regional flood management strategy**…

27.1 – Support…**watershed-scale climate vulnerability and adaptation assessments**…to address risks to water supply, ecosystems, and water quality.

27.3 – …evaluate…**forecast-informed reservoir operations**…to improve flood control and surface and ground water supply storage.

Flood-MAR Alignment with other State Efforts

- Central Valley Flood Protection Plan
  - Looking at opportunities to better coordinate flood and groundwater management
  - Many flood channels (rivers and bypasses) do not meet flood design capacity
    - Due to vegetation, sedimentation, or subsidence
  - Opportunities to evaluate conveyance for habitat – floodplain restoration and ecosystem benefits in flood bypasses



Flood-MAR Alignment with other State Efforts

Source: Google Earth review in 2010.

Figure 2-4a. Representative Photograph of Remnar Sacramento River (at River Mile 71)

Source: Google Earth review in 2010.

Figure 2-4b. Representative Photograph of Riparian Habitat and R along the Feather River (at River Mile 21)

- CVFPP Conservation Strategy
  - Sharing tools to evaluate floodplain recharge potential

Source: 2016 Conservation

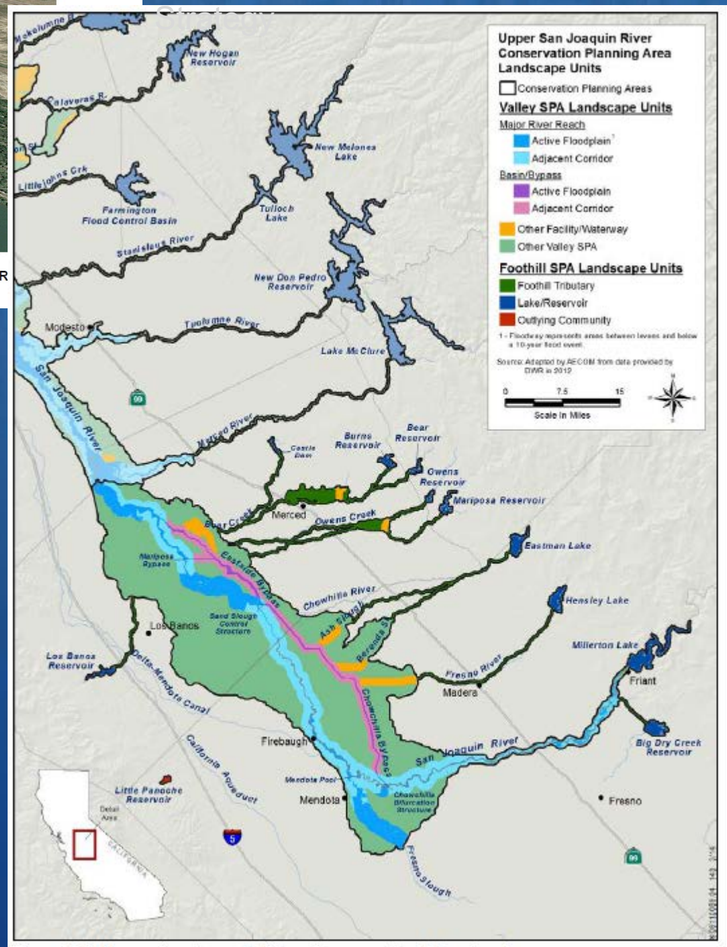
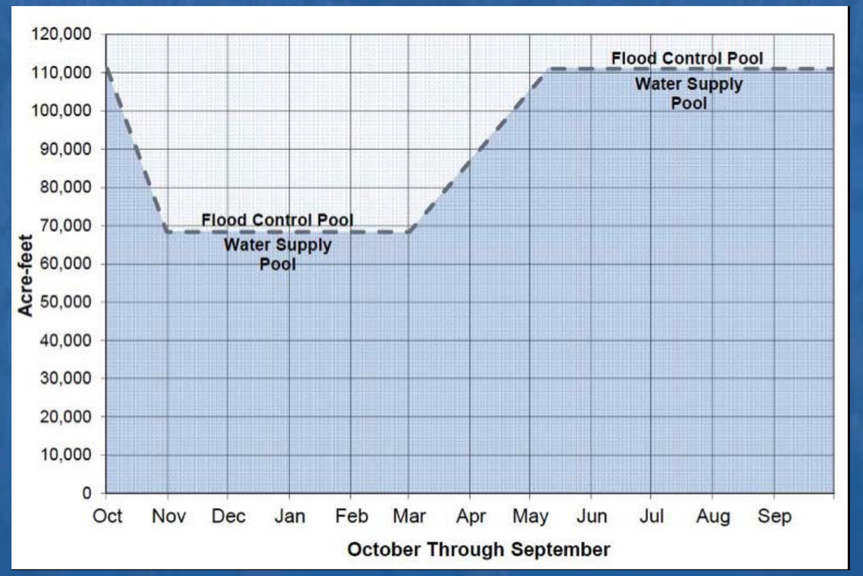


Figure 5-4. Upper San Joaquin River Conservation Planning Area

Flood-MAR Alignment with other State Efforts



Source: Center for Western Weather and Water Extremes

- Forecast-Informed Reservoir Operations
  - Evaluating recharge pool concepts and FIRO scenarios to better coordinate surface and groundwater management

Flood-MAR Alignment with other State Efforts

Source: The Nature Conservancy Multi-Benefit Recharge Program

- Sustainable Groundwater Management Act Implementation
  - Coordinate pilot projects – aquifer characterization needs

Conveyance Needs

Summary of Conveyance Issues Related to Flood-MAR Activities

- Many potential recharge areas are not connected to surface supplies
- Many channels do not meet design capacity and have inadequate capacity for multiple benefits
- Coordination with canal maintenance
- Partnerships (joint use/multiple benefits)

One final plug…

- Join the Flood-MAR Network!
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Thank you!